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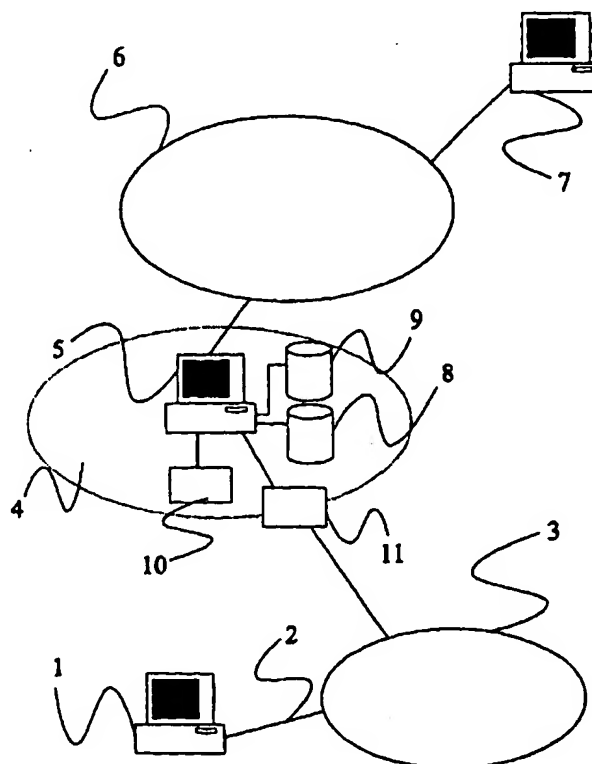
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(21) International Application Number: <b>PCT/EP99/03576</b> (22) International Filing Date: <b>25 May 1999 (25.05.99)</b> (30) Priority Data: <b>981195</b> <b>28 May 1998 (28.05.98)</b> <b>FI</b> (71) Applicant: <b>TELEFONAKTIEBOLAGET LM ERICSSON</b> (publ) [SE/SE]; S-126 25 Stockholm (SE). (72) Inventor: <b>TURTIAINEN, Esa; Kartanonkuja 8 H, FIN-02360</b> Espoo (FI). (74) Agent: <b>BORENIUS &amp; CO. OY AB; Kansakoulukuja 3,</b> <b>FIN-00100 Helsinki (FI).</b>		(81) Designated States: AE, AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.          Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: **ADVERTISEMENTS ON A DATA NETWORK**

(57) Abstract

A method of conveying advertisements to a user terminal (1), wherein the user terminal (1) is coupled to the Internet (6) via a proxy server (5), and at least one content provider server (7) is also coupled to the Internet (6). The method comprises sending a Web page from the content provider server (7) to the proxy server (5) via the Internet (6), the Web page conveying visual information. At the proxy server (5), data conveying visual information relating to at least one advertisement is incorporated into the Web page, or appending thereto. The modified Web page is then sent from the proxy server (5) to the user terminal (1).



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**ADVERTISEMENTS ON A DATA NETWORK**Field of the Invention

5 The present invention relates to a method and apparatus for providing advertisements to an end user via a data communications network. In particular, though not necessarily, the invention relates to the incorporation of advertisements into World Wide Web pages downloaded via  
10 the Internet.

Background to the Invention

Despite its short history, the Internet has already proved  
15 to be an extremely efficient means for distributing advertisements for products and services to potential customers. Advertisements are typically made available directly, by way of a World Wide Web (WWW) page which can be downloaded to an end-user's personal computer by the  
20 end-user entering the Universal Resource Locator (URL) address of the page into his Web browser, or by incorporating a link to such a page in the Web page of a third party. Considering the latter situation, a link to an advertiser's Web page may be incorporated, for example,  
25 into a page of an on-line newspaper or magazine. The advertisement is incorporated into the third party page as a so-called "hot-link" (comprising for example text or a picture) such that the end-user is able to download a new page, related to the advertisement, by clicking on the  
30 link.

This method of incorporating advertisements into the Web page of a third party is not optimal for two reasons. Firstly, especially where advertisements are carried by  
35 way of a picture, even the incorporation of a relatively small number of advertisements into a Web page can add

significantly to the (data) size of the page, and can therefore significantly increase its downloading time. Secondly, the incorporation of advertisements into downloaded pages typically takes no consideration of the interests of the end-user who is receiving the pages. A user is therefore likely to miss potentially interesting advertisements, buried amongst the many other irrelevant advertisements.

Given the existing situation, there is a temptation for users to filter out advertisements from downloaded pages. This can be done automatically by client programs (browsers), based upon the structure of a downloaded page. For example, elements of a page which originate from a site different to that from which the body of the page originates may be considered advertisements and therefore removed from the page.

One proposal to provide for the transmission of advertisements relevant to a particular user, involves collecting information on Web pages which have been downloaded from the Internet by the user at his Web browser. This information may include, for example, the URL addresses of the previously downloaded Web pages. The information is collated at the Web browser (the collated information sometimes being referred to as a "cookie") and is transmitted to some central database Web server which responds by selecting advertisements on the basis of the received end-user data and by sending these advertisements to the end-user.

A problem with this approach however is that end-users may not actively cooperate with the central Web server by sending collated data. In such a case, the system cannot function as intended.

Summary of the Invention

It is an object of the present invention to overcome or at least mitigate the above noted disadvantage of known Internet advertisement distribution systems. In particular, it is an object of the present invention to enable advertisements to be sent to a user via a data network together with requested Web pages, the advertisements being selected on the basis of the content of the Web pages and/or a predetermined profile of the user.

According to a first aspect of the present invention there is provided a method of conveying advertisements to a user terminal, wherein the user terminal is coupled to a data network via an intermediate server, and at least one content provider server is also coupled to the data network, the method comprising:

20        sending an electronic file from the content provider server to the intermediate server via said data network, said file conveying human comprehensible information;

         at the intermediate server, incorporating into said electronic file, or appending thereto, electronic data conveying further human comprehensible information relating to at least one advertisement; and

         sending the modified electronic file from the intermediate server to the user terminal.

30        Typically, an intermediate server associated with an end-user is located geographically closer to the end-user than is the content provider server. Thus, the present invention allows advertisements to be incorporated into downloaded files at a local level. Thus, advertisements may be incorporated into the files which are likely to have more relevance to the end-user.

Preferably, the electronic file sent from the content provider server contains markers or tags identifying positions in the file where advertisements may be inserted by the intermediate server. For example, where said electronic file conveys a graphical image, and said human comprehensible information is a still image or a video sequence, a marker may define the position and size of the insertion into said graphical image.

Where said electronic file conveys a still image, the image may be encoded in a GIF format or a JPEG format. Other formats may also be used, such as PNG. Similarly, where the inserted electronic data conveys a still image, that data may be in a corresponding format. Where the electronic file and/or inserted data convey a video image, the file/data may be in an MPEG, AVI, VIVO, QT, or other format.

Whilst the electronic data inserted into the downloaded file may convey visual information, it may also convey other information such as an audio sequence, e.g. music.

In certain embodiments of the invention, the method comprises creating at the intermediate server a profile for each end-user attached to that intermediate server. For example, a profile may be constructed using the data network addresses of files previously downloaded to the user's terminal. Advertisements to be incorporated or appended to a file may then be selected on the basis of the user profile.

In other embodiments of the invention, the electronic file sent from the content provider server comprises at least one tag, which tag is used by the intermediate server to determine the nature of the advertisement to be incorporated into or appended to the file. For example,

the tag may define a location in the file, or it may define a type of advertisement, e.g. subject or medium.

The data network used to convey said electronic file may  
5 be the Internet, in which case said electronic file comprises HTML code defining a Web page. The advertisement may be incorporated into the Web page by suitably modifying the HTML code. Alternatively, and as mentioned above, the advertisement may be inserted into an  
10 image (e.g. GIF, MPEG), audio (WAV), or other file contained within the Web page. The advantage of the latter method is that the advertisement becomes more securely embedded in the Web page and thus it is more difficult to filter out the advertisement.

15 More preferably, the above mentioned profile for each user may be created using the Universal Resource Locator (URL) addresses of Web pages requested by the user. In this case, said intermediate server is preferably a proxy  
20 server, typically operated by an Internet Service Provider or forming part of a Local Area Network through which the user terminal is connected to the Internet.

According to a second aspect of the present invention  
25 there is provided apparatus for conveying advertisements to a user terminal, the apparatus comprising an intermediate server coupling the user terminal to a data network and arranged in use to receive, via the data network, an electronic file from a content provider server  
30 also coupled to the data network, said file conveying human comprehensible information, the intermediate server having:

memory means storing electronic data conveying further human comprehensible information relating to at  
35 least one advertisement;

signal processing means for incorporating into said electronic file, or appending thereto, said electronic data; and

transmitting means arranged to send the modified  
5 electronic file from the intermediate server to the user terminal.

According to a third aspect of the present invention there is provided a computer memory encoded with executable  
10 instructions representing a computer program for causing an intermediate server to:

receive an electronic file from a content provider server via a data network to which the intermediate and content provider servers are coupled, said file conveying  
15 human comprehensible information;

incorporate into said electronic file, or append thereto, electronic data conveying further human comprehensible information relating to at least one advertisement; and

20 send the modified electronic file to the user terminal.

#### Brief Description of the Drawings

25 For a better understanding of the present invention and in order to show how the same may be carried into effect reference will now be made, by way of example, to the accompanying drawings, in which:

Figure 1 shows schematically a system for  
30 incorporating advertisements into Web pages downloaded over the Internet; and

Figure 2 shows a flow chart illustrating the method of operation of the system of Figure 1.

#### 35 Detailed Description of Embodiments



There is illustrated in Figure 1 a user terminal 1 which is typically a personal computer or the like. The user terminal 1 is connected via a modem (not shown) to an Integrated Services Digital Network (ISDN) telephone line 2, and through that line to a Public Telephone Network 3 to which the user subscribes. Upon request, e.g. by dialling a predefined number from the user terminal 1, the user is able to connect to an Internet Service Provider (ISP) 4. The user will normally have an account with the ISP 4.

The ISP 4 has a so-called Network Access Server (NAS) 11 which routes data between the PTN 3 and a Local Area Network (LAN) of the ISP 4. The NAS 11 acts as a protocol converter, converting between the circuit switched transmission protocol of the PTN 3 and the packet switched protocol of the LAN and the World Wide Web (WWW) 6.

After the user terminal 1 has logged on to the NAS 11 via the PTN 3, a user is able to make a request to the ISP 4 to download a particular Web page via from the WWW 6. This involves the user entering a Universal Resource Locator (URL) address into the Web browser operating on the user terminal 1 and sending this to the NAS 11. A URL is a special kind of Internet Protocol (IP) address which identifies a particular remote server 7 connected to the WWW 6, and a particular page (or data file) held by that server 7. The remote server 7 may in this context be referred to as an Internet Content Provider.

30

All URL requests are passed by the NAS 11 to a "proxy" server 5. The conventional function of the proxy server 5 is to retain in a database thereof, and for a predetermined time, Web pages previously downloaded from the WWW 6. Upon receiving a download request therefore, the proxy server 5 first examines its database to

determine whether or not it contains the requested WWW page. If it does, the page is returned to the user terminal 1. If not, then the page is downloaded from the Internet Content Provider 7, using the TCP/IP protocol, and relay to the user terminal 1 via the proxy server 5 and the PTN 3.

When a Web page at some particular URL is downloaded from an Internet Content Provider 7, this is temporarily stored in a buffer memory 10 of the proxy server 5. As is well known, Web pages are constructed using a language known as Hyper Text Mark-up language (HTML) and it is in this form which the downloaded page is stored in the buffer memory 10.

The proxy server 5 is provided with a user profile database 8. This database 8 associates users with one or more categories. Typical categories may include financial services, computer products and services, film and television, cars, etc. A user is associated with a category on the basis of URL addresses which have previously been browsed on the user's terminal 1, and more particularly by associating category keywords with URL addresses. For example, the word "insurance" contained in a URL may cause a user to be associated in the database 8 with the "financial" services category.

The proxy server is also provided with a second database 9 which contains a list of the categories contained in the profile database 8, together with respective sets of advertisement files. Each file contains advertisement information, such as text, pictures, and video or audio sequences, relevant to the associated category. Typically, text files are stored in HTML format, picture files in JPEG, GIF or PNG format, video files in MPEG, AVI, VIVO, or QT format, and audio files in WAV format

(depending upon browser compatibility). Of course, an advertisement may also comprise a picture, video, or audio file (or any combination of these) embedded in an HTML file.

5

For the purposes of this example, it is assumed that the Internet Content Provider 7 has an agreement with the ISP 4 regarding the placement of advertisements in Web pages downloaded from the Content Provider 7. Alternatively, 10 both the Content Provider 7 and the ISP 4 may have adopted a national or international standard concerning such placement. In either case, Web pages downloaded to the proxy server 5 are accompanied by "tags" which may be appended to the HTML file or may be incorporated 15 thereinto. These tags identify the location, number, and format for advertisements to be inserted into the Web page by the proxy server 5.

The destination of the Web page, i.e. the end user, is 20 known to the proxy server 5, and the server 5 is able to identify from the profile database 8 the categories which are associated with that particular user. From the second database 9, the server is then able to identify and extract one or more advertisement files belonging to the 25 identified category. This selection is also made on the basis of the tags accompanying the HTML file.

The advertisement files (HTML, JPEG, WAV, etc) extracted from the database 9 are then incorporated into the HTML 30 format Web page, temporarily stored in the buffer memory 10. It will be appreciated that the advertisement files may produce additional "hot-links" into the Web page. The modified Web page is then transferred from the buffer memory 10 of the proxy server 5, via the PTN 3, to the 35 user terminal 1. Upon receipt thereof, the user is able to display the Web page using the Web browser running on

the terminal. As will be apparent, the advertisements incorporated into the page by the proxy server 5 appear to the user as a "seamless" part of the Web page.

- 5 It will be appreciated by the person of skill in the art that various modifications may be made to the embodiment described above without departing from the scope of the present invention. For example, the advertisement files may be embedded with other files which are themselves  
10 embedded in the downloaded Web page. For example, an advertisement consisting of a GIF still image may be embedded inside another GIF image already contained in the Web page. The tag associated with the Web page may be contained in the HTML code, or may be contained in the GIF  
15 image itself.

Claims

1. A method of conveying advertisements to a user terminal, wherein the user terminal is coupled to a data network via an intermediate server, and at least one content provider server is also coupled to the data network, the method comprising:
  - 5 sending an electronic file from the content provider server to the intermediate server via said data network, said file conveying human comprehensible information;
  - at the intermediate server, incorporating into said electronic file, or appending thereto, electronic data conveying further human comprehensible information relating to at least one advertisement; and
  - 15 sending the modified electronic file from the intermediate server to the user terminal.
2. A method according to claim 1, wherein the electronic file sent from the content provider server contains markers identifying positions in the file where advertisements may be inserted by the intermediate server.
3. A method according to claim 1 or 2 and comprising creating at the intermediate server a profile for each end-user attached to that intermediate server.
4. A method according to claim 3, wherein a profile is constructed using the data network addresses of files previously downloaded to the user's terminal, and advertisements to be incorporated or appended to a file are then be selected on the basis of the user profile.
5. A method according to any one of the preceding claims, wherein the electronic file sent from the content provider server comprises at least one tag, which tag is used by the intermediate server to determine the nature of

the advertisement to be incorporated into or appended to the file.

6. A method according to claim 5, wherein the tag  
5 defines a location in the file or a type of advertisement.

7. A method according to any one of the preceding  
claims, wherein the data network used to convey said  
electronic file is the Internet and said electronic file  
10 comprises HTML code defining a Web page.

8. A method according to claim 7, and comprising  
incorporating the advertisement into the Web page by  
suitably modifying the HTML code.

15

9. A method according to claim 7 and comprising  
incorporating the advertisement into an image, audio, or  
video format file embedded in the Web page.

20 10. A method according to claim 9, wherein the  
advertisement is in the same format as the file into which  
it is embedded.

11. A method according to any one of claims 7 to 10 when  
25 appended to claim 3, wherein the profile for each user is  
created using the Universal Resource Locator (URL)  
addresses of Web pages previously requested by the user.

12. Apparatus for conveying advertisements to a user  
30 terminal (1), the apparatus comprising a intermediate  
server (5) coupling the user terminal (1) to a data  
network (6) and arranged in use to receive, via the data  
network (6), an electronic file from a content provider  
server (7) also coupled to the data network (6), said file  
35 conveying human comprehensible information, the  
intermediate server (5) having:

memory means (9) storing electronic data conveying further human comprehensible information relating to at least one advertisement;

signal processing means (5) for incorporating into  
5 said electronic file, or appending thereto, said electronic data; and

transmitting means (5) arranged to send the modified electronic file from the intermediate server (5) to the user terminal (1).

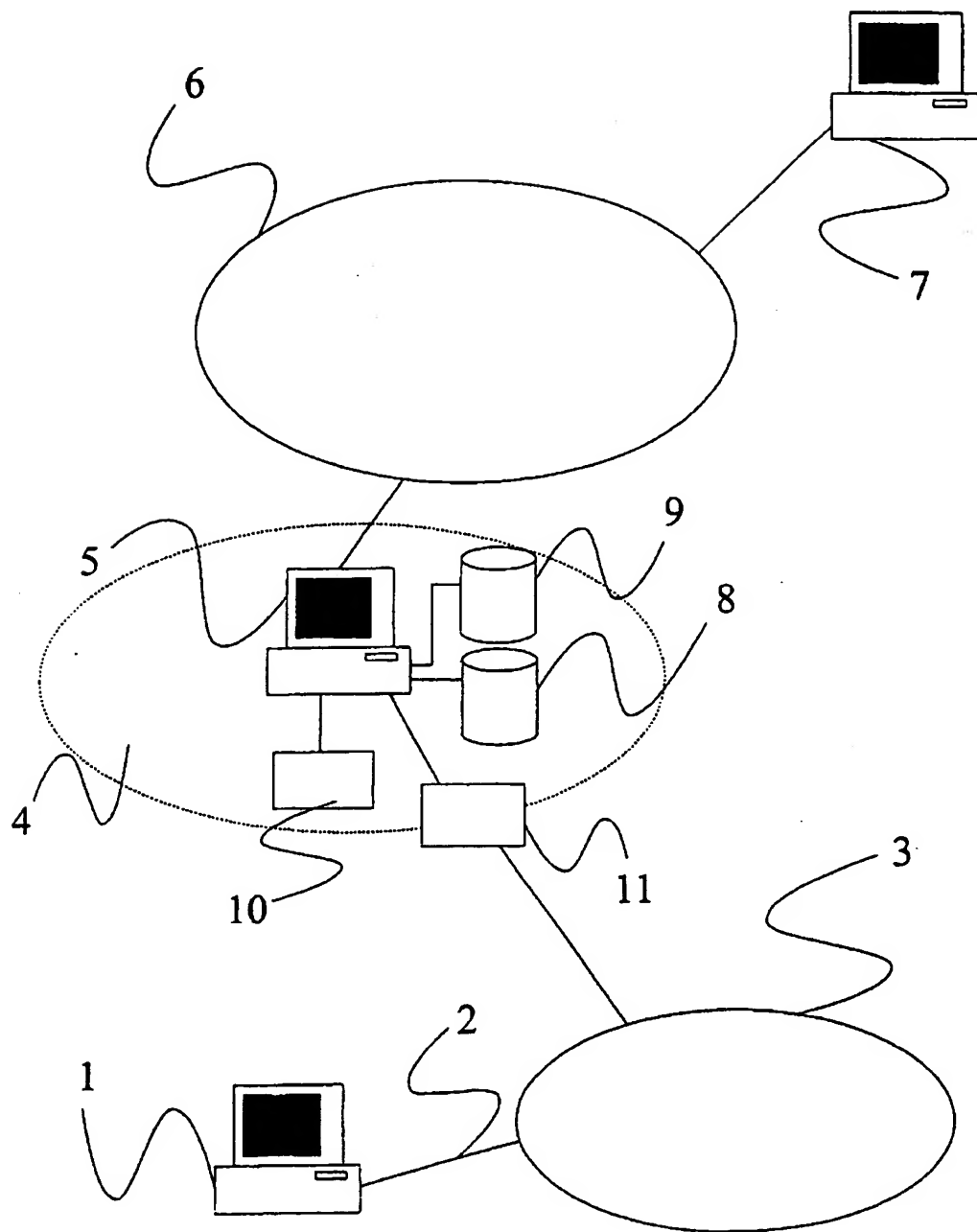
10

13. A computer memory encoded with executable instructions representing a computer program for causing an intermediate server to:

receive an electronic file from a content provider  
15 server via a data network to which the intermediate and content provider servers are coupled, said file conveying human comprehensible information;

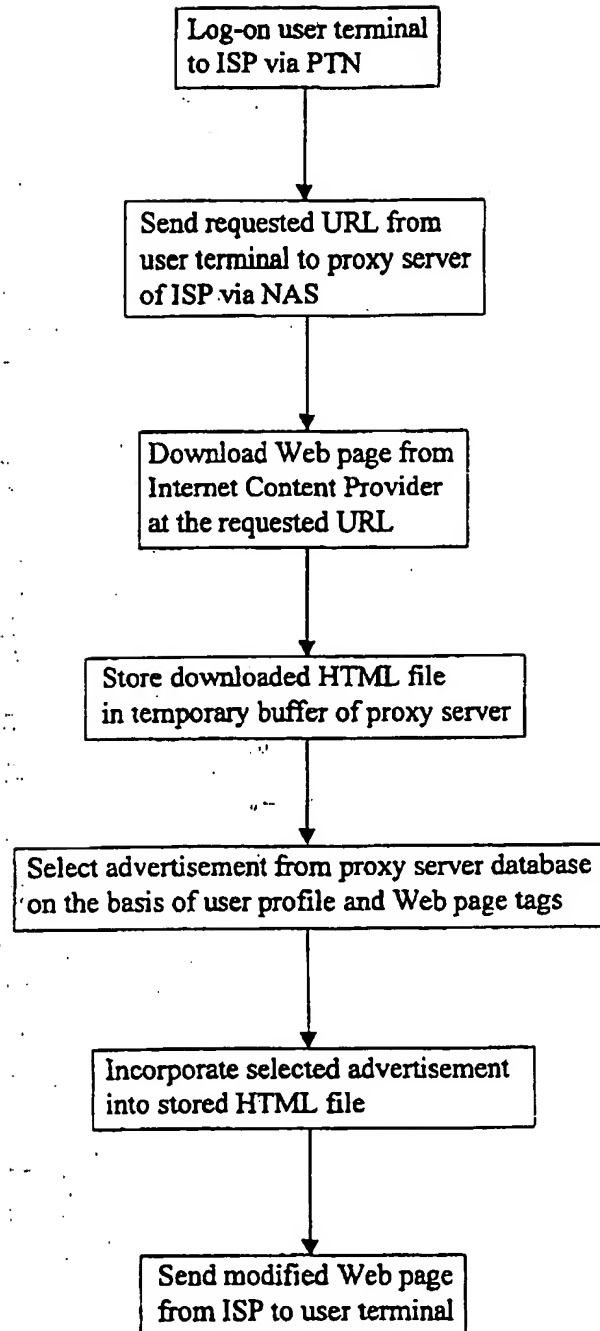
incorporate into said electronic file, or append  
thereto, electronic data conveying further human  
20 comprehensible information relating to at least one advertisement; and

send the modified electronic file to the user terminal.

Fig. 1



2/2

Fig. 2

## INTERNATIONAL SEARCH REPORT

International Application No.

PCT/EP 99/03576

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 6 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 22074 A (CYBERGOLD INC ;GOLDHABER A NATHANIEL (US); FITTS GARY (US)) 19 June 1997 (1997-06-19)	1-3, 12, 13
Y	page 7, line 26 -page 8, line 54 page 22, line 22 -page 28, line 3	4-11
Y	WO 97 26729 A (ROBINSON GARY B) 24 July 1997 (1997-07-24) page 2, line 1 -page 7, line 36	4-11
X	US 5 724 521 A (DEDRICK RICK) 3 March 1998 (1998-03-03) column 1, line 54 -column 8, line 40; figure 1	1-4, 12, 13
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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20/09/1999

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NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax: (+31-70) 340-3016

Authorized officer

Bowler, A

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/03576

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/03576

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